REMARKS

This communication is in response to the Office Action mailed on March 8, 2006. In the Office Action, claims 1-37 were pending on which claims 1-37 were rejected. With this amendment, claims 1-9 and 11- 36 are pending and claims 10 and 37 have been cancelled.

The Office Action first reports that claims 1-37 were rejected under 35 U.S.C. §101 for statutory subject matter in that the claimed invention must be a "useful, concrete and tangible result." The rejection based on statutory subject matter is respectfully traversed. It is respectfully submitted that classification is known by those skilled in the art to be useful in many applications involving probabilities. For example, classification can be used for speech or handwriting recognition, Internet search engines, or data mining. In the background section of the present application, applicants specifically provide that classifiers can be used to "identify a topic for a web page." [See Specification, page 1, lines 24-26]

The Office Action next reports that claims 18-21 were rejected under 35 U.S.C. §112 as being indefinite. In particular, these claims use the term "first certain portion" which is a term not defined at all in the specification. Claims 18-21 have been amended. It is respectfully requested that the above rejection based on 35 U.S.C. §112 be withdrawn.

The Office Action next reports that claims 2 and 27 were rejected under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action states that these two claims use the phrase "selecting unlabeled instances or data" but that this phrase is not found in the Specification. It is believed that claim 2 does not include the phase "selecting unlabeled instances (or) data." It is believed that the examiner probably intended to

indicate claim 22. Thus, clarification with respect to claim 2 is respectfully requested.

Nevertheless, both claims 22 and 27 have been amended in a similar manner to divide the step of selecting unlabeled instances that are certain with respect to the first classifier and uncertain with respect to the second classifier into at least a two-step process. This at least two-step process is believed to be described in the Specification at least at page 23, lines 15-26.

The Office Action next reports that claims 1-3, 10-13, 18-25, 27-33, 36-37 were rejected under 35 U.S.C. §102(b) as being anticipated by "Word Translation Disambiguation Using Bilingual Bootstrapping" (hereinafter Li). It is noted that the one of the authors of this reference, Hang Li, is also one of the present inventors. Reference Li describes an older classification method. The present inventions are considered advantageous due especially to the additional feature of uncertainty reduction. In most embodiments, uncertainty reduction is performed by first selecting instances that are uncertain with respect to one classifier and then classifying those instances using another classifier. It is believed that uncertainty reduction as disclosed in the present application boosts classification performance by leading to greater classification accuracy.

Claim 1 has been amended to recite a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to classify data comprising the steps of: receiving labeled data; receiving unlabeled data; constructing a first classifier and a second classifier using the labeled data; performing uncertainty reduction comprising: selecting instances from the unlabeled data that are uncertain with respect to the first classifier; and selecting instances from the unlabeled data that are uncertain with respect to the second classifier; labeling the instances uncertain to the first

classifier using the second classifier to form a first labeled set; and labeling the instances uncertain to the second classifier using the first classifier to form a second labeled set. [emphasis added]

Thus, claim 1 has been amended to more explicitly define the feature of uncertainty reduction described above. In light of the amendments to claim 1, it is believed that the present rejection of claim 1 has been made moot. Thus, claim 1 is presented for review and favorable action. Claims 2-21 depend on claim 1 and are also presented for favorable action.

Claim 22 has been amended to recite a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to classify data comprising the steps of: constructing a first classifier and a second classifier using received labeled instances; using the first classifier to select unlabeled instances that are certain with respect to the first classifier; selecting instances uncertain with respect to the second classifier data from among the instances certain with respect to the first classifier to form a first set of unlabeled instances; and using the second classifier to select unlabeled instances that are certain with respect to the second classifier; and selecting instances uncertain with respect to the first classifier from among the instances certain with respect to the second classifier to form a second set of unlabeled instances. [emphasis added]

The amendments to claim 22 are similar to the amendment to claim 1. Thus, remarks relating to claim 1 are incorporated by reference. It is noted that the amendment of claim 22 are believed supported in the Specification at least at page 23, lines 15-29.

Claim 22 now clarifies that an at least a two-step process is used to first select instances that are first certain to one of the classifiers. Then, from among these certain

instances a smaller number of instances are selected that are uncertain to the other classifier. It is noted that this process is also parallel. Claim 23 depends on claim 22 and further includes further uncertainty reduction where the first set of unlabeled instances (generated in accordance with claim 22) are labeled using the first classifier and the second set of unlabeled instances (generated in accordance with claim 22) are labeled using the second classifier.

It is believed that the cited art does not teach or suggest this parallel two-step process and uncertainty reduction. Thus, it is believed that claim 22 is patentable over the cited art. Claims 23-25 depend on claim 1 and are believed to be separately patentable. Reconsideration and allowance of claims 22-25 are respectfully requested.

Independent claim 27 has been amended to recite a method of training a classifier, the method comprising: receiving labeled data; receiving unlabeled data; constructing a first classifier and a second classifier using the labeled data; using the first classifier to select some of the unlabeled data that is certain with respect to the first classifier; selecting unlabeled data uncertain with respect to the second classifier from among the unlabeled data that is certain with respect to the first classifier to form a first set of unlabeled data; and using the second classifier to select some of the unlabeled data that is certain with respect to the second classifier; and selecting unlabeled data uncertain with respect to the first classifier from among the unlabeled data that is certain with respect to the second classifier to form a second set of unlabeled data. [emphasis added]

Claim 27 has been amended to further refine the feature of uncertainty reduction in a manner similar to claims 1 and 22. Remarks relating to claims 1 and 22 are herein incorporated by reference. Thus, claim 27 is believed to be patentable over the

cited art. Claims 28-35 depend on claim 27 and are believed to be separately patentable. Reconsideration and allowance of claims 27-35 are respectfully requested.

The Office Action next reports that claims 4-9, 14-17, 26, and 34-35 were rejected under 35 U.S.C. §103(a) as being unpatentable over Li in view of "A Sequential Algorithm for Training Text Classifiers" herein referred to as "Lewis". Claims 4-9, 14-17, and 26 depend on claim 1, which has been amended. Claims 34-35 depend on claim 27, which has also been amended. It s submitted that the amendments to claims 1 and 27 change the scope of claims 4-9, 14-17, 26, and 34-35. Thus, it is believed that the rejection of these dependent claims has been made moot.

Claim 36 has been amended with the additional features of claim 37, now cancelled. Claim 36 is presented for examination and favorable action.

A petition for a one-month extension of time is hereby requested. PTO Form 2038 in the amount of $120 is included herewith for the extension fee.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: _____

Linda Ji, Reg. No. 49,027
900 Second Avenue South, Suite 1400
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

LPJ:rg